

## CLAIMS

- 1/ An electromagnetic probe, comprising at least one assembly comprising in combination:
- a coaxial type connection;
  - 5       • a ground plane connected to the outer sheath of the coaxial connection;
  - a reflector cone placed facing the ground plane and shaped to define impedance that is at least substantially constant along its profile; and
- 10       • a dielectric medium interposed at least in part between the reflector cone and the ground plane.
- 2/ A probe according to claim 1, further comprising a sleeve centered on the ground plane and placed facing the
- 15       reflector cone.
- 3/ A probe according to claim 1, further comprising a rod-shaped element passing through at least part of the reflector cone and constituting a matching stub extending
- 20       the central core of the coaxial connection.
- 4/ A probe according to claim 1, wherein the assembly is circularly symmetrical about a central axis.
- 25       5/ A probe according to claim 1, wherein the reflector cone has a profiled surface defined by a generator line that is concave towards the ground plane.
- 30       6/ A probe according to claim 1, wherein the ground plane is defined by a plate.
- 7/ A probe according to claim 6, wherein the ground plane has a surface facing the reflector cone, which surface converges towards the cone and towards the central axis.

1. CONTINUATION-CLAIMS
- 8/ A probe according to claim 7, wherein the converging surface of the ground plane possesses curvature that is generally continuous.
- 5    9/ A probe according to claim 7, wherein the converging surface of the ground plane is formed by a generally plane plate having a cylinder projecting from its center.
- 10    10/ A probe according to claim 2, wherein the sleeve is stepped.
- 15    11/ A probe according to claim 10, wherein the sleeve is made up of a plurality of cylinders on the same axis, and of decreasing diameter going towards the reflector cone.
- 20    12/ A probe according to claim 1, wherein at least a portion of the dielectric medium possesses permittivity greater than 1.
- 25    13/ A probe according to claim 1, wherein the dielectric medium substantially fills the space lying between the reflector cone and the ground plane, with the exception of a peripheral zone adjacent to the ground plane.
- 30    14/ A probe according to claim 1, wherein the ground plane and the sleeve are made out of a single piece.
- 15/ A probe according to claim 3, wherein the rod-shaped element constituting a stub is stepped.
- 35    16/ A probe according to claim 3, including a dielectric bushing surrounding at least a portion of the stub-forming rod-shaped element.
- 17/ A probe according to claim 1, comprising a plurality of assemblies centered on axes that are not mutually parallel so as to form a multidirectional probe.

- 18/ A probe according to claim 17, wherein the ground planes of the various individual assemblies lie on the outside faces of a polyhedron.
- 5           19/ A probe according to claim 1, comprising three individual assemblies centered on respective axes O-O that are mutually orthogonal in pairs.
- 10          20/ A probe according to claim 17, comprising three individual assemblies lying on faces defining a corner of a cube.
- 15          21/ A probe according to claim 17, comprising a support polyhedron integrated with the ground planes of the various individual assemblies.

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